



# FCC RADIO TEST REPORT

**FCC ID** : A4R-G6ZUC  
**Equipment** : Wireless product  
**Applicant** : Google LLC  
1600 Amphitheatre Parkway,  
Mountain View, California, 94043 USA  
**Standard** : FCC Part 15 Subpart E §15.407

The product was received on Sep. 16, 2022 and testing was performed from Sep. 16, 2022 to Sep. 29, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

*Louis Wu*

Approved by: Louis Wu

**Sporton International Inc. Wensan Laboratory**

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C)



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### History of this test report

Report No.	Version	Description	Issue Date
FR292824	01	Initial issue of report	Nov. 16, 2022



### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.407(a)(5)	Fundamental Maximum EIRP	Pass	-
3.2	15.407(a)(5)	Fundamental Power Spectral Density	Pass	-
3.3	15.407(b)(5)	Unwanted Emissions	Pass	3.54 dB under the limit at 30.000 MHz
3.4	15.203	Antenna Requirement	Pass	-

**Declaration of Conformity:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Uncertainty of Evaluation".

**Comments and Explanations:**

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: William Chen**

**Report Producer: Lucy Wu**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Wireless product
FCC ID	A4R-G6ZUC
EUT supports Radios application	WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160

Remark: The above EUT's information was declared by manufacturer.

EUT Information List	
S/N	Performed Test Item
29091J3GT0CCGL	Conducted Measurement
	Radiated Spurious Emission
	Radiated EIRP Power Spectral Density



### 1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
<b>Tx/Rx Frequency Range</b>	5925 MHz ~ 6425 MHz 6425 MHz ~ 6525 MHz 6525 MHz ~ 6875 MHz 6875 MHz ~ 7125 MHz
<b>Maximum Output Power</b>	<p>&lt;For N<sub>ss</sub> = 1&gt;  <b>&lt;5925 MHz ~ 6425 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>  802.11a: 8.81 dBm / 0.0076 W  802.11ax HE20: 8.37 dBm / 0.0069 W  802.11ax HE40: 11.13 dBm / 0.0130 W  802.11ax HE80: 14.12 dBm / 0.0258 W  802.11ax HE160: 16.28 dBm / 0.0425 W</p> <p><b>&lt;6425 MHz ~ 6525 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>  802.11a: 9.92 dBm / 0.0098 W  802.11ax HE20: 9.92 dBm / 0.0098 W  802.11ax HE40: 13.02 dBm / 0.0200 W  802.11ax HE80: 14.51 dBm / 0.0282 W  802.11ax HE160: 17.36 dBm / 0.0545 W</p> <p><b>&lt;6525 MHz ~ 6875 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>  802.11a: 10.56 dBm / 0.0114 W  802.11ax HE20: 10.41 dBm / 0.0110 W  802.11ax HE40: 13.26 dBm / 0.0212 W  802.11ax HE80: 16.31 dBm / 0.0428 W  802.11ax HE160: 17.56 dBm / 0.0570 W</p> <p><b>&lt;6875 MHz ~ 7125 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>  802.11a: 10.67 dBm / 0.0117 W  802.11ax HE20: 10.82 dBm / 0.0121 W  802.11ax HE40: 13.71 dBm / 0.0235 W  802.11ax HE80: 15.36 dBm / 0.0344 W  802.11ax HE160: 18.41 dBm / 0.0693 W</p>



Product Specification is subject to this standard	
<b>Maximum Output Power</b>	<p><b>&lt;For N<sub>ss</sub> = 2&gt;</b>  <b>&lt;5925 MHz ~ 6425 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>            802.11a: 8.86 dBm / 0.0077 W            802.11ax HE20: 11.31 dBm / 0.0135 W            802.11ax HE40: 13.61 dBm / 0.0230 W            802.11ax HE80: 15.74 dBm / 0.0375 W            802.11ax HE160: 18.85 dBm / 0.0767 W  <b>&lt;6425 MHz ~ 6525 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>            802.11a: 9.86 dBm / 0.0097 W            802.11ax HE20: 12.11 dBm / 0.0163 W            802.11ax HE40: 14.93 dBm / 0.0311 W            802.11ax HE80: 16.92 dBm / 0.0492 W            802.11ax HE160: 20.01 dBm / 0.1002 W  <b>&lt;6525 MHz ~ 6875 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>            802.11a: 10.56 dBm / 0.0114 W            802.11ax HE20: 12.51 dBm / 0.0178 W            802.11ax HE40: 15.41 dBm / 0.0348 W            802.11ax HE80: 17.26 dBm / 0.0532 W            802.11ax HE160: 20.26 dBm / 0.1062 W  <b>&lt;6875 MHz ~ 7125 MHz&gt;</b>  <b>MIMO &lt;Ant. 5+6&gt;</b>            802.11a: 10.67 dBm / 0.0117 W            802.11ax HE20: 13.16 dBm / 0.0207 W            802.11ax HE40: 15.96 dBm / 0.0394 W            802.11ax HE80: 17.71 dBm / 0.0590 W            802.11ax HE160: 20.96 dBm / 0.1247 W</p>
<b>Antenna Type</b>	<p><b>&lt;5925 MHz ~ 6425 MHz&gt;</b>  <b>&lt;Ant. 5&gt;</b>: PIFA Antenna  <b>&lt;Ant. 6&gt;</b>: PIFA Antenna  <b>&lt;6425 MHz ~ 6525 MHz&gt;</b>  <b>&lt;Ant. 5&gt;</b>: PIFA Antenna  <b>&lt;Ant. 6&gt;</b>: PIFA Antenna  <b>&lt;6525 MHz ~ 6875 MHz&gt;</b>  <b>&lt;Ant. 5&gt;</b>: PIFA Antenna  <b>&lt;Ant. 6&gt;</b>: PIFA Antenna  <b>&lt;6875 MHz ~ 7125 MHz&gt;</b>  <b>&lt;Ant. 5&gt;</b>: PIFA Antenna  <b>&lt;Ant. 6&gt;</b>: PIFA Antenna</p>



Product Specification is subject to this standard								
<b>Antenna Gain</b>	<5925 MHz ~ 6425 MHz> <Ant. 5>: 6.0 dBi <Ant. 6>: 5.3 dBi <6425 MHz ~ 6525 MHz> <Ant. 5>: 5.5 dBi <Ant. 6>: 5.2 dBi <6525 MHz ~ 6875 MHz> <Ant. 5>: 5.5 dBi <Ant. 6>: 5.2 dBi <6875 MHz ~ 7125 MHz> <Ant. 5>: 3.4 dBi <Ant. 6>: 3.3 dBi							
<b>Type of Modulation</b>	802.11a/n : OFDM (BPSK/QPSK/16QAM/64QAM) 802.11ac : OFDM (BPSK/QPSK/16QAM/64QAM/256QAM) 802.11ax : OFDMA (BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)							
<b>Antenna Function Description</b>	<table border="1"> <thead> <tr> <th></th> <th>Ant. 5</th> <th>Ant. 6</th> </tr> </thead> <tbody> <tr> <td>802.11a/ax MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>			Ant. 5	Ant. 6	802.11a/ax MIMO	V	V
	Ant. 5	Ant. 6						
802.11a/ax MIMO	V	V						

**Remark:**

1. MIMO Ant. 5+6 Directional Gain is a calculated result from MIMO Ant. 5 and MIMO Ant. 6. The formula used in calculation is documented in section 1.2.1.
2. Power of MIMO Ant. 5 + Ant. 6 is a calculated result from sum of the power MIMO Ant. 5 and MIMO Ant. 6.
3. The above EUT's information is declared by manufacturer. Please refer to Comments and Explanations in report summary.



### 1.2.1 Antenna Gain

**<For CDD Mode>**

Follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)c)i)

Cross-polarized antennas. For a system in which the antennas have fixed orientations relative to one another that ensure that the antennas are cross-polarized regardless of any user actions, the directional gain is computed as follows.

- (i) Cross-polarized antennas with NANT = 2. In the case of a transmitter with only two outputs driving a pair of antennas that are cross-polarized (e.g., vertical and horizontal or left-circular and right-circular), directional gain is the gain of an individual antenna. If the two antennas have different gains, the larger gain applies.

The directional gain “DG” is calculated as following table.

	Ant 5 (dBi)	Ant 6 (dBi)	DG for Power (dBi)	DG for PSD (dBi)
<b>5925 MHz ~ 6425 MHz</b>	6.00	5.30	6.00	6.00
<b>6425 MHz ~ 6525 MHz</b>	5.50	5.20	5.50	5.50
<b>6525 MHz ~ 6875 MHz</b>	5.50	5.20	5.50	5.50
<b>6875 MHz ~ 7125 MHz</b>	3.40	3.30	3.40	3.40

Calculation example:

If a device has two antenna,  $G_{ANT1} = 6.0\text{dBi}$ ;  $G_{ANT2} = 5.3\text{dBi}$

Directional gain of power measurement =  $\max(6.0, 5.3) = 6.0 \text{ dBi}$

Directional gain of PSD measurement =  $\max(6.0, 5.3) = 6.0 \text{ dBi}$

### 1.3 Modification of EUT

No modifications made to the EUT during the testing.



### 1.4 Testing Location

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH05-HY, 03CH15-HY

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW3786

### 1.5 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2013

**Remark:**

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.



## 2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, , the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.

### 2.1 Carrier Frequency and Channel

BW 20M	Channel	33	37	41	45	49	53	57	61
	Freq. (MHz)	6115	6135	6155	6175	6195	6215	6235	6255
BW 40M	Channel	35		43		51		59	
	Freq. (MHz)	6125		6165		6205		6245	
BW 80M	Channel	39				55			
	Freq. (MHz)	6145				6225			
BW 160M	Channel	47							
	Freq. (MHz)	6185							

BW 20M	Channel	65	69	73	77	81	85	89	93
	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415
BW 40M	Channel	67		75		83		91	
	Freq. (MHz)	6285		6325		6365		6405	
BW 80M	Channel	71				87			
	Freq. (MHz)	6305				6385			
BW 160M	Channel	79							
	Freq. (MHz)	6345							

BW 20M	Channel	97	101	105	109	113	117	121	125
	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575
BW 40M	Channel	99		107		115		123	
	Freq. (MHz)	6445		6485		6525		6565	
BW 80M	Channel	103				119			
	Freq. (MHz)	6465				6545			
BW 160M	Channel	111							
	Freq. (MHz)	6505							



<b>BW 20M</b>	<b>Channel</b>	129	133	137	141	145	149	153	157
	<b>Freq. (MHz)</b>	6595	6615	6635	6655	6675	6695	6715	6735
<b>BW 40M</b>	<b>Channel</b>	131		139		147		155	
	<b>Freq. (MHz)</b>	6605		6645		6685		6725	
<b>BW 80M</b>	<b>Channel</b>	135				151			
	<b>Freq. (MHz)</b>	6625				6705			
<b>BW 160M</b>	<b>Channel</b>	143							
	<b>Freq. (MHz)</b>	6665							

<b>BW 20M</b>	<b>Channel</b>	161	165	169	173	177	181	185	189
	<b>Freq. (MHz)</b>	6755	6775	6795	6815	6835	6855	6875	6895
<b>BW 40M</b>	<b>Channel</b>	163		171		179		187	
	<b>Freq. (MHz)</b>	6765		6805		6845		6885	
<b>BW 80M</b>	<b>Channel</b>	167				183			
	<b>Freq. (MHz)</b>	6785				6865			
<b>BW 160M</b>	<b>Channel</b>	175							
	<b>Freq. (MHz)</b>	6825							

<b>BW 20M</b>	<b>Channel</b>	193	197	201	205	209	213	217	221
	<b>Freq. (MHz)</b>	6915	6935	6955	6975	6995	7015	7035	7055
<b>BW 40M</b>	<b>Channel</b>	195		203		211		219	
	<b>Freq. (MHz)</b>	6925		6965		7005		7045	
<b>BW 80M</b>	<b>Channel</b>	199				215			
	<b>Freq. (MHz)</b>	6945				7025			
<b>BW 160M</b>	<b>Channel</b>	207							
	<b>Freq. (MHz)</b>	6985							

<b>BW 20M</b>	<b>Channel</b>	225				229			
	<b>Freq. (MHz)</b>	7075				7095			
<b>BW 40M</b>	<b>Channel</b>	227							
	<b>Freq. (MHz)</b>	7085							



## 2.2 Test Mode

The SISO mode conducted power is covered by MIMO mode per chain, so only the MIMO mode is tested.

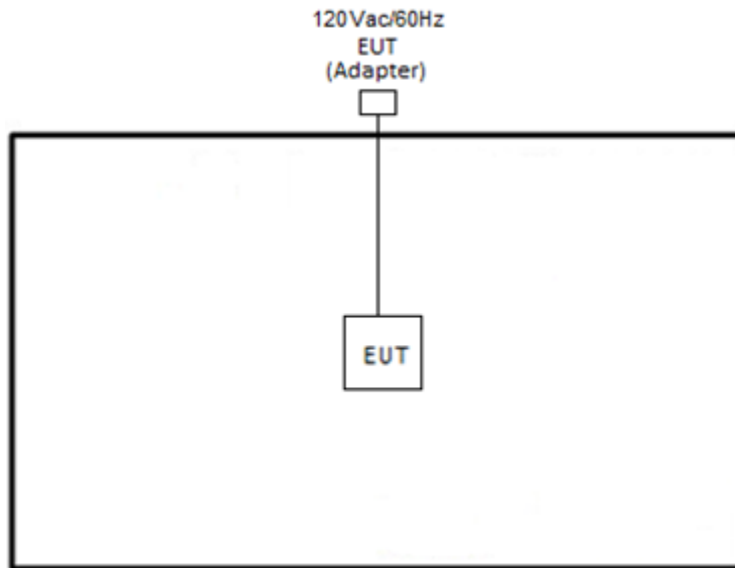
The final test modes include the worst data rates for each modulation shown in the table below.

Modulation	Data Rate
802.11a	6 Mbps
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

Ch. #		UNII-5 (5925-6425 MHz)
		802.11ax HE20
L	Low	-
M	Middle	-
H	High	093

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



## 2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

## 2.5 EUT Operation Test Setup

The RF test items, utility "QRCT 4.0.00206.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

### 3 Test Result

#### 3.1 Fundamental Maximum EIRP Measurement

##### 3.1.1 Limit of Fundamental Maximum EIRP

<FCC 14-30 CFR 15.407>

(a)(5) For an indoor access point operating in the 5.925-7.125 GHz band, the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm.

##### 3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

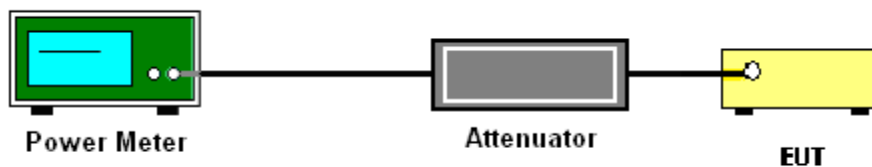
##### 3.1.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor,  $10 \log(1/x)$ , where  $x$  is the duty cycle.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of Fundamental Maximum EIRP

Please refer to Appendix A.



## 3.2 Fundamental Power Spectral Density Measurement

### 3.2.1 Limit of Fundamental Power Spectral Density

<FCC 14-30 CFR 15.407>

(a)(5) For an indoor access point operating in the 5.925-7.125 GHz band, the maximum power spectral density must not exceed 5 dBm e.i.r.p. in any 1-megahertz band.

### 3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

### 3.2.3 Test Procedures

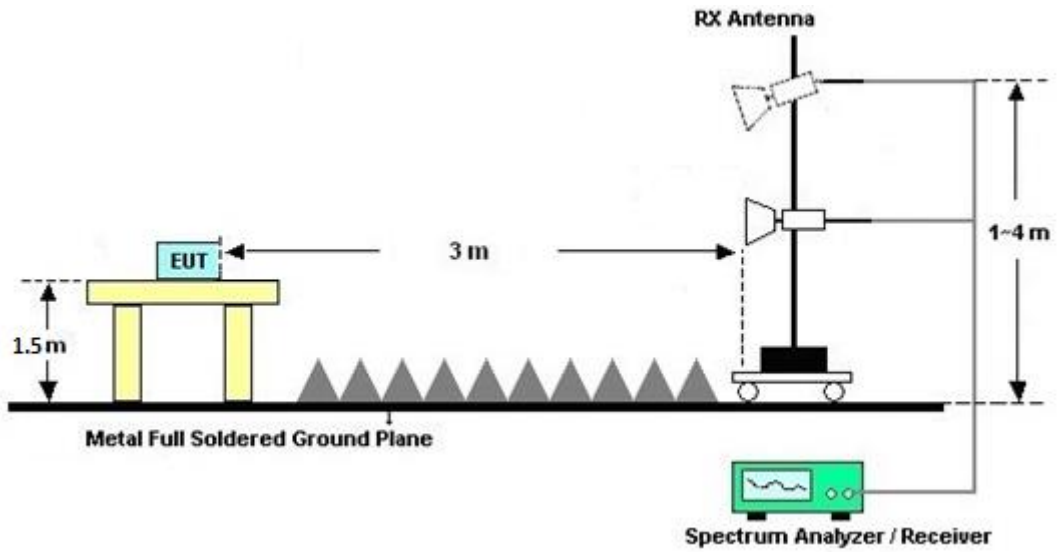
1. The EUT was placed on the top of a rotating table 1.5meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Perform a field strength measurement following ANSI C63.10 and record the worse field strength value via a spectrum reading obtained corrected for antenna factor cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP level.
3. Follow ANSI C63.10 and KDB 412172 D01 v01r01,  
EIRP Value (dBm) = Field Strength Value(dBuV/m) + Correction Factor @3m.
4. Correction Factor (dB) @ 3m =  $20\log(D = 3m) - 104.77 = -95.23\text{dB}$

#### # Method SA-2 #

- Measure the duty cycle.
- Set RBW = 1MHz.
- Set VBW  $\geq$  3 MHz
- Number of points in sweep  $\geq$  2 Span / RBW.
- Sweep time = auto.
- Detector = power averaging (rms)
- Trace average at least 100 traces in power averaging mode.
- Add  $10 \log(1/X)$ , where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.



### 3.2.4 Test Setup



### 3.2.5 Test Result of Power Spectral Density

Please refer to Appendix B.

### 3.3 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

#### 3.3.1 Limit of Unwanted Emissions

- (1) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27 dBm/MHz.

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27 (RMS)	68.3
- 7 (Peak)	88.3

According 987594 D02 U-NII 6GHz EMC Measurement v01 section G:

Unwanted emissions outside of restricted bands are measured with a RMS detector.

In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit

- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

**Note:** The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

#### 3.3.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.



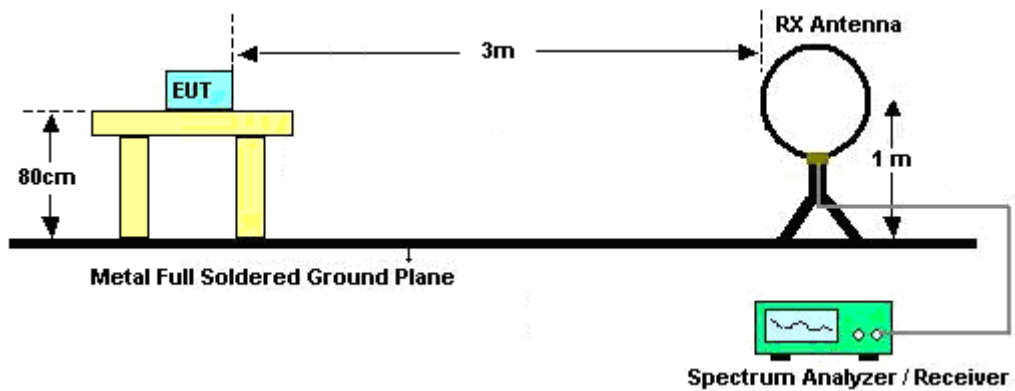
### 3.3.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
  - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
    - RBW = 1 MHz
    - VBW  $\geq$  3 MHz
    - Detector = Peak
    - Sweep time = auto
    - Trace mode = max hold
  - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
    - RBW = 1 MHz
    - VBW = 10 Hz, when duty cycle is no less than 98 percent.
    - VBW  $\geq$  1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as "-".

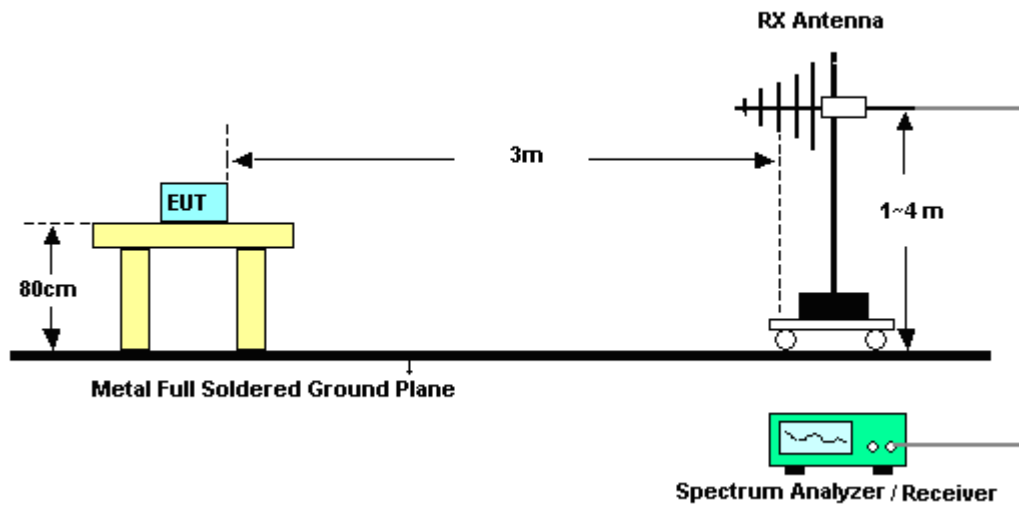
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“..

### 3.3.4 Test Setup

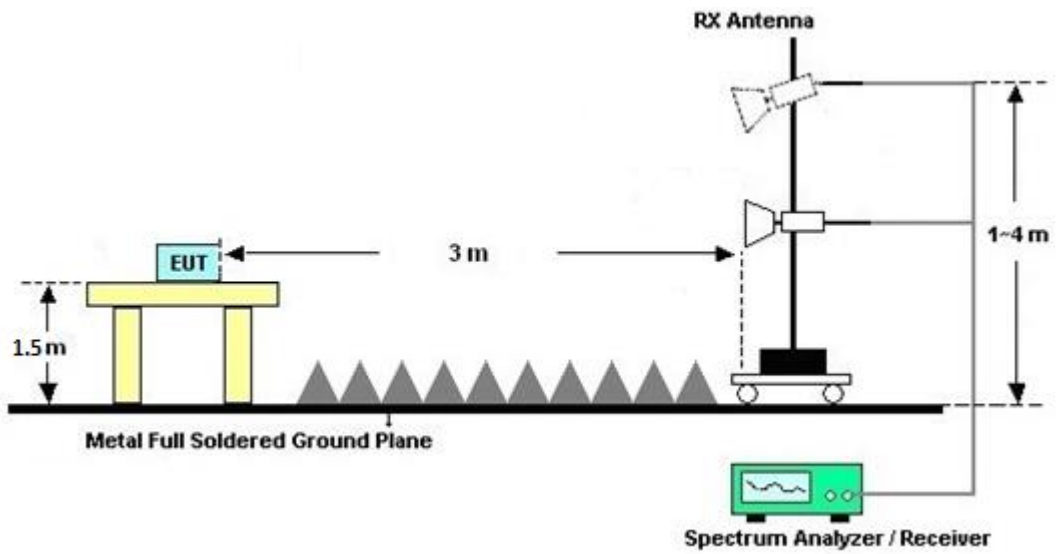
For radiated emissions below 30MHz



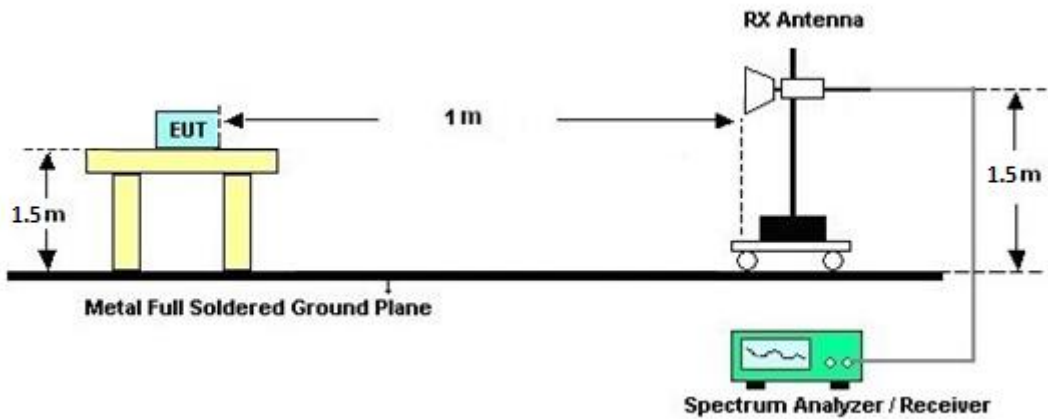
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz





### **3.3.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)**

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

### **3.3.6 Test Result of Radiated Spurious at Band Edges**

Please refer to Appendix C and D.

### **3.3.7 Duty Cycle**

Please refer to Appendix E.

### **3.3.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)**

Please refer to Appendix C and D.



## **3.4 Antenna Requirements**

### **3.4.1 Standard Applicable**

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

### **3.4.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.



## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Sep. 20, 2022~ Sep. 28, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W #010	RPR6W-2101 002(NO:123)	10MHz~8GHz	Jan. 13, 2022	Sep. 20, 2022~ Sep. 28, 2022	Jan. 12, 2023	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101905	10Hz - 40GHz(amp)	Aug. 03, 2022	Sep. 20, 2022~ Sep. 28, 2022	Aug. 02, 2023	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	May 13, 2022	Sep. 16, 2022~ Sep. 29, 2022	May 12, 2023	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	41912 & 05	30MHz~1GHz	Feb. 06, 2022	Sep. 16, 2022~ Sep. 29, 2022	Feb. 05, 2023	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 27, 2021	Sep. 16, 2022~ Sep. 29, 2022	Dec. 26, 2022	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-02294	1GHz~18GHz	Jun. 23, 2022	Sep. 16, 2022~ Sep. 29, 2022	Jun. 22, 2023	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00993	18GHz~40GHz	Nov. 30, 2021	Sep. 16, 2022~ Sep. 29, 2022	Nov. 29, 2022	Radiation (03CH15-HY)
Amplifier	EMEC	EM1G18G	060837	1GHz~18GHz	Sep. 01, 2022	Sep. 16, 2022~ Sep. 29, 2022	Aug. 31, 2023	Radiation (03CH15-HY)
Preamplifier	EMEC	EM01G18G	060802	1GHz-18GHz	Mar. 08, 2022	Sep. 16, 2022~ Sep. 29, 2022	Mar. 07, 2023	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 21, 2021	Sep. 16, 2022~ Sep. 29, 2022	Oct. 20, 2022	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9010	MY54200485	10Hz~44GHz	May 07, 2022	Sep. 16, 2022~ Sep. 29, 2022	May 06, 2023	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Sep. 16, 2022~ Sep. 29, 2022	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Sep. 16, 2022~ Sep. 29, 2022	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5 )	RK-000451	N/A	N/A	Sep. 16, 2022~ Sep. 29, 2022	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY36980/4, MY9838/4PE, 508405/2E	30MHz~18G	Nov. 15, 2021	Sep. 16, 2022~ Sep. 29, 2022	Nov. 14, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804 012/2	30MHz-40GHz	Jan. 04, 2022	Sep. 16, 2022~ Sep. 29, 2022	Jan. 03, 2023	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Sep. 16, 2022~ Sep. 29, 2022	Mar. 09, 2023	Radiation (03CH15-HY)
Filter	Wainwright	WLJ4-1000-15 30-6000-40ST	SN4	1.53GHz Low Pass Filter	Jul. 08, 2022	Sep. 16, 2022~ Sep. 29, 2022	Jul. 07, 2023	Radiation (03CH15-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40ST	SN6	6.75GHz High Pass Filter	Jul. 08, 2022	Sep. 16, 2022~ Sep. 29, 2022	Jul. 07, 2023	Radiation (03CH15-HY)





## 5 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.8 dB
-------------------------------------------------------------------------	--------

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.3 dB
-------------------------------------------------------------------------	--------

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.6 dB
-------------------------------------------------------------------------	--------

**Appendix A. Test Result of Conducted Test Items**

Test Engineer:	Ching Chen	Temperature:	21~25	°C
Test Date:	2022/9/20~2022/9/28	Relative Humidity:	51~54	%

<Nss = 1>

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-5 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	033	6115	0.05	0.05	4.80	6.20	8.57	6.00	6.00	14.57	30.00	Pass
11a	6Mbps	2	065	6275	0.05	0.05	5.10	5.80	8.47	6.00	6.00	14.47	30.00	Pass
11a	6Mbps	2	093	6415	0.05	0.05	5.80	5.80	8.81	6.00	6.00	14.81	30.00	Pass

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-6 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	097	6435	0.05	0.05	6.50	6.10	9.31	5.50	14.81	30.00	Pass	
11a	6Mbps	2	105	6475	0.05	0.05	6.30	6.00	9.16	5.50	14.66	30.00	Pass	
11a	6Mbps	2	113	6515	0.05	0.05	7.20	6.60	9.92	5.50	15.42	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-7 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	117	6535	0.05	0.05	6.80	6.10	9.47	5.50	14.97	30.00	Pass	
11a	6Mbps	2	149	6695	0.05	0.05	6.50	7.20	9.87	5.50	15.37	30.00	Pass	
11a	6Mbps	2	181	6855	0.05	0.05	7.60	7.50	10.56	5.50	16.06	30.00	Pass	

U-NII-7 straddle channel MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	185	6875	0.05	0.05	7.50	6.90	10.22	5.50	15.72	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-8 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6	SUM		
11a	6Mbps	2	189	6895	0.05	0.05	7.50	7.00	10.27	3.40		13.67	30.00	Pass
11a	6Mbps	2	209	6995	0.05	0.05	7.40	7.80	10.61	3.40		14.01	30.00	Pass
11a	6Mbps	2	229	7095	0.05	0.05	7.30	8.00	10.67	3.40		14.07	30.00	Pass

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-5 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	033	6115	Full	0.08	0.08	4.70	5.90	8.35	6.00	14.35	30.00	Pass	
HE20	MCS0	2	065	6275	Full	0.08	0.08	5.10	5.60	8.37	6.00	14.37	30.00	Pass	
HE20	MCS0	2	093	6415	Full	0.08	0.08	5.20	5.20	8.21	6.00	14.21	30.00	Pass	
HE40	MCS0	2	035	6125	Full	0.09	0.09	7.70	8.50	11.13	6.00	17.13	30.00	Pass	
HE40	MCS0	2	067	6285	Full	0.09	0.09	7.20	7.60	10.41	6.00	16.41	30.00	Pass	
HE40	MCS0	2	091	6405	Full	0.09	0.09	8.10	8.00	11.06	6.00	17.06	30.00	Pass	
HE80	MCS0	2	039	6145	Full	0.09	0.09	10.80	11.40	14.12	6.00	20.12	30.00	Pass	
HE80	MCS0	2	071	6305	Full	0.09	0.09	9.70	10.00	12.86	6.00	18.86	30.00	Pass	
HE80	MCS0	2	087	6385	Full	0.09	0.09	9.50	9.80	12.66	6.00	18.66	30.00	Pass	
HE160	MCS0	2	047	6185	Full	0.09	0.09	12.40	14.00	16.28	6.00	22.28	30.00	Pass	
HE160	MCS0	2	079	6345	Full	0.09	0.09	13.40	13.00	16.21	6.00	22.21	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-6 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	097	6435	Full	0.08	0.08	5.80	5.40	8.61	5.50	14.11	30.00	Pass	
HE20	MCS0	2	105	6475	Full	0.08	0.08	5.60	5.40	8.51	5.50	14.01	30.00	Pass	
HE20	MCS0	2	113	6515	Full	0.08	0.08	7.20	6.60	9.92	5.50	15.42	30.00	Pass	
HE40	MCS0	2	099	6445	Full	0.09	0.09	8.30	8.30	11.31	5.50	16.81	30.00	Pass	
HE40	MCS0	2	107	6485	Full	0.09	0.09	10.00	9.90	12.96	5.50	18.46	30.00	Pass	
HE80	MCS0	2	103	6465	Full	0.09	0.09	11.20	10.80	14.01	5.50	19.51	30.00	Pass	

U-NII-6 straddle channel MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE40	MCS0	2	115	6525	Full	0.09	0.09	10.30	9.70	13.02	5.50	18.52	30.00	Pass	
HE80	MCS0	2	119	6545	Full	0.09	0.09	11.70	11.30	14.51	5.50	20.01	30.00	Pass	
HE160	MCS0	2	111	6505	Full	0.09	0.09	14.30	14.40	17.36	5.50	22.86	30.00	Pass	



**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-7 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	117	6535	Full	0.08	0.08	7.10	6.40	9.77	5.50	15.27	30.00	Pass	
HE20	MCS0	2	149	6695	Full	0.08	0.08	5.70	6.60	9.18	5.50	14.68	30.00	Pass	
HE20	MCS0	2	181	6855	Full	0.08	0.08	7.40	7.40	10.41	5.50	15.91	30.00	Pass	
HE40	MCS0	2	123	6565	Full	0.09	0.09	9.30	9.30	12.31	5.50	17.81	30.00	Pass	
HE40	MCS0	2	147	6685	Full	0.09	0.09	8.10	8.50	11.31	5.50	16.81	30.00	Pass	
HE40	MCS0	2	179	6845	Full	0.09	0.09	9.90	9.90	12.91	5.50	18.41	30.00	Pass	
HE80	MCS0	2	135	6625	Full	0.09	0.09	11.10	10.70	13.91	5.50	19.41	30.00	Pass	
HE80	MCS0	2	151	6705	Full	0.09	0.09	11.00	11.70	14.37	5.50	19.87	30.00	Pass	
HE80	MCS0	2	167	6785	Full	0.09	0.09	11.80	12.80	15.34	5.50	20.84	30.00	Pass	
HE160	MCS0	2	143	6665	Full	0.09	0.09	14.20	14.40	17.31	5.50	22.81	30.00	Pass	

U-NII-7 straddle channel MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	185	6875	Full	0.08	0.08	7.40	7.30	10.36	5.50	15.86	30.00	Pass	
HE40	MCS0	2	187	6885	Full	0.09	0.09	10.20	10.30	13.26	5.50	18.76	30.00	Pass	
HE80	MCS0	2	183	6865	Full	0.09	0.09	13.20	13.40	16.31	5.50	21.81	30.00	Pass	
HE160	MCS0	2	175	6825	Full	0.09	0.09	14.50	14.60	17.56	5.50	23.06	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-8 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6	SUM		
HE20	MCS0	2	189	6895	Full	0.08	0.08	7.10	6.60	9.87	3.40	13.27	30.00	Pass	
HE20	MCS0	2	209	6995	Full	0.08	0.08	6.90	7.30	10.11	3.40	13.51	30.00	Pass	
HE20	MCS0	2	229	7095	Full	0.08	0.08	7.50	8.10	10.82	3.40	14.22	30.00	Pass	
HE40	MCS0	2	195	6925	Full	0.09	0.09	10.80	10.60	13.71	3.40	17.11	30.00	Pass	
HE40	MCS0	2	211	7005	Full	0.09	0.09	9.70	11.00	13.41	3.40	16.81	30.00	Pass	
HE40	MCS0	2	227	7085	Full	0.09	0.09	10.30	11.00	13.67	3.40	17.07	30.00	Pass	
HE80	MCS0	2	199	6945	Full	0.09	0.09	12.30	12.40	15.36	3.40	18.76	30.00	Pass	
HE80	MCS0	2	215	7025	Full	0.09	0.09	11.70	12.50	15.13	3.40	18.53	30.00	Pass	
HE160	MCS0	2	207	6985	Full	0.09	0.09	15.40	15.40	18.41	3.40	21.81	30.00	Pass	

&lt;Nss = 2&gt;

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-5 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6	SUM		
11a	6Mbps	2	033	6115	0.05	0.05	4.90	6.20	8.61	6.00		14.61	30.00	Pass
11a	6Mbps	2	065	6275	0.05	0.05	4.90	5.80	8.38	6.00		14.38	30.00	Pass
11a	6Mbps	2	093	6415	0.05	0.05	5.90	5.80	8.86	6.00		14.86	30.00	Pass

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-6 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	097	6435	0.05	0.05	6.40	6.10	9.26	5.50	14.76	30.00	Pass	
11a	6Mbps	2	105	6475	0.05	0.05	6.40	6.00	9.21	5.50	14.71	30.00	Pass	
11a	6Mbps	2	113	6515	0.05	0.05	7.00	6.70	9.86	5.50	15.36	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-7 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	117	6535	0.05	0.05	6.80	6.10	9.47	5.50	14.97	30.00	Pass	
11a	6Mbps	2	149	6695	0.05	0.05	6.50	7.20	9.87	5.50	15.37	30.00	Pass	
11a	6Mbps	2	181	6855	0.05	0.05	7.60	7.50	10.56	5.50	16.06	30.00	Pass	

U-NII-7 straddle channel MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
11a	6Mbps	2	185	6875	0.05	0.05	7.60	7.50	10.56	5.50	16.06	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-8 MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6	SUM		
11a	6Mbps	2	189	6895	0.05	0.05	7.40	6.80	10.12	3.40		13.52	30.00	Pass
11a	6Mbps	2	209	6995	0.05	0.05	7.40	7.90	10.67	3.40		14.07	30.00	Pass
11a	6Mbps	2	229	7095	0.05	0.05	7.30	7.90	10.62	3.40		14.02	30.00	Pass

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-5 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6	SUM		
HE20	MCS0	2	033	6115	Full	0.08	0.08	7.50	8.10	10.82	6.00	6.00	16.82	30.00	Pass
HE20	MCS0	2	065	6275	Full	0.08	0.08	7.60	8.40	11.03	6.00	6.00	17.03	30.00	Pass
HE20	MCS0	2	093	6415	Full	0.08	0.08	8.40	8.20	11.31	6.00	6.00	17.31	30.00	Pass
HE40	MCS0	2	035	6125	Full	0.08	0.08	10.20	10.90	13.57	6.00	6.00	19.57	30.00	Pass
HE40	MCS0	2	067	6285	Full	0.08	0.08	10.40	10.80	13.61	6.00	6.00	19.61	30.00	Pass
HE40	MCS0	2	091	6405	Full	0.08	0.08	10.50	10.60	13.56	6.00	6.00	19.56	30.00	Pass
HE80	MCS0	2	039	6145	Full	0.08	0.08	11.80	13.50	15.74	6.00	6.00	21.74	30.00	Pass
HE80	MCS0	2	071	6305	Full	0.08	0.08	12.40	12.60	15.51	6.00	6.00	21.51	30.00	Pass
HE80	MCS0	2	087	6385	Full	0.08	0.08	12.50	12.70	15.61	6.00	6.00	21.61	30.00	Pass
HE160	MCS0	2	047	6185	Full	0.08	0.08	15.20	16.40	18.85	6.00	6.00	24.85	30.00	Pass
HE160	MCS0	2	079	6345	Full	0.08	0.08	15.30	15.10	18.21	6.00	6.00	24.21	30.00	Pass

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-6 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	097	6435	Full	0.08	0.08	8.70	8.50	11.61	5.50	17.11	30.00	Pass	
HE20	MCS0	2	105	6475	Full	0.08	0.08	9.20	9.00	12.11	5.50	17.61	30.00	Pass	
HE20	MCS0	2	113	6515	Full	0.08	0.08	9.00	8.50	11.77	5.50	17.27	30.00	Pass	
HE40	MCS0	2	099	6445	Full	0.08	0.08	9.90	9.80	12.86	5.50	18.36	30.00	Pass	
HE40	MCS0	2	107	6485	Full	0.08	0.08	11.50	11.20	14.36	5.50	19.86	30.00	Pass	
HE80	MCS0	2	103	6465	Full	0.08	0.08	13.00	13.40	16.21	5.50	21.71	30.00	Pass	

U-NII-6 straddle channel MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE40	MCS0	2	115	6525	Full	0.08	0.08	12.30	11.50	14.93	5.50	20.43	30.00	Pass	
HE80	MCS0	2	119	6545	Full	0.08	0.08	14.20	13.60	16.92	5.50	22.42	30.00	Pass	
HE160	MCS0	2	111	6505	Full	0.08	0.08	17.00	17.00	20.01	5.50	25.51	30.00	Pass	



**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-7 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	117	6535	Full	0.08	0.08	9.00	8.80	11.91	5.50	17.41	30.00	Pass	
HE20	MCS0	2	149	6695	Full	0.08	0.08	8.20	9.20	11.74	5.50	17.24	30.00	Pass	
HE20	MCS0	2	181	6855	Full	0.08	0.08	9.60	9.40	12.51	5.50	18.01	30.00	Pass	
HE40	MCS0	2	123	6565	Full	0.08	0.08	10.90	10.80	13.86	5.50	19.36	30.00	Pass	
HE40	MCS0	2	147	6685	Full	0.08	0.08	10.90	11.20	14.06	5.50	19.56	30.00	Pass	
HE40	MCS0	2	179	6845	Full	0.08	0.08	11.90	12.10	15.01	5.50	20.51	30.00	Pass	
HE80	MCS0	2	135	6625	Full	0.08	0.08	14.20	13.80	17.01	5.50	22.51	30.00	Pass	
HE80	MCS0	2	151	6705	Full	0.08	0.08	13.20	13.50	16.36	5.50	21.86	30.00	Pass	
HE80	MCS0	2	167	6785	Full	0.08	0.08	13.00	13.10	16.06	5.50	21.56	30.00	Pass	
HE160	MCS0	2	143	6665	Full	0.08	0.08	16.80	17.00	19.91	5.50	25.41	30.00	Pass	

U-NII-7 straddle channel MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	185	6875	Full	0.08	0.08	9.30	9.40	12.36	5.50	17.86	30.00	Pass	
HE40	MCS0	2	187	6885	Full	0.08	0.08	12.30	12.50	15.41	5.50	20.91	30.00	Pass	
HE80	MCS0	2	183	6865	Full	0.08	0.08	14.10	14.40	17.26	5.50	22.76	30.00	Pass	
HE160	MCS0	2	175	6825	Full	0.08	0.08	17.20	17.30	20.26	5.50	25.76	30.00	Pass	

**TEST RESULTS DATA**  
**EIRP Power Table**

U-NII-8 MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 5	Ant 6	Ant 5	Ant 6	SUM	Ant 5	Ant 6			
HE20	MCS0	2	189	6895	Full	0.08	0.08	9.80	9.30	12.57	3.40	15.97	30.00	Pass	
HE20	MCS0	2	209	6995	Full	0.08	0.08	10.10	10.20	13.16	3.40	16.56	30.00	Pass	
HE20	MCS0	2	229	7095	Full	0.08	0.08	9.60	10.10	12.87	3.40	16.27	30.00	Pass	
HE40	MCS0	2	195	6925	Full	0.08	0.08	13.10	12.80	15.96	3.40	19.36	30.00	Pass	
HE40	MCS0	2	211	7005	Full	0.08	0.08	12.60	13.20	15.92	3.40	19.32	30.00	Pass	
HE40	MCS0	2	227	7085	Full	0.08	0.08	12.10	12.40	15.26	3.40	18.66	30.00	Pass	
HE80	MCS0	2	199	6945	Full	0.08	0.08	14.50	14.90	17.71	3.40	21.11	30.00	Pass	
HE80	MCS0	2	215	7025	Full	0.08	0.08	14.00	14.50	17.27	3.40	20.67	30.00	Pass	
HE160	MCS0	2	207	6985	Full	0.08	0.08	17.80	18.10	20.96	3.40	24.36	30.00	Pass	



## Appendix B. EIRP Power Spectral Density Test Results

Test Engineer :	Eric Xiao and Bigshow Wang	Temperature :	22.1~23.1°C
		Relative Humidity :	55~60%

**TEST RESULTS DATA**  
**EIRP Power Spectral Density**

Band V MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
11a	6Mbps	2	033	6115	-	92.142	7.450	99.625	0.033	-95.23	4.395	5.00	Pass
11a	6Mbps	2	033	6115	-	92.053	7.450	99.536	0.033	-95.23	4.306	5.00	Pass
11a	6Mbps	2	065	6275	-	91.805	7.860	99.698	0.033	-95.23	4.468	5.00	Pass
11a	6Mbps	2	065	6275	-	91.645	7.860	99.538	0.033	-95.23	4.308	5.00	Pass
11a	6Mbps	2	093	6415	-	91.066	8.350	99.449	0.033	-95.23	4.219	5.00	Pass
11a	6Mbps	2	093	6415	-	91.231	8.350	99.614	0.033	-95.23	4.384	5.00	Pass

1Stream  
2Stream  
1Stream  
2Stream  
1Stream  
2Stream

Band VI MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
11a	6Mbps	2	097	6435	-	91.082	8.380	99.495	0.033	-95.23	4.265	5.00	Pass
11a	6Mbps	2	097	6435	-	91.109	8.380	99.522	0.033	-95.23	4.292	5.00	Pass
11a	6Mbps	2	105	6475	-	91.126	8.530	99.689	0.033	-95.23	4.459	5.00	Pass
11a	6Mbps	2	105	6475	-	91.153	8.530	99.716	0.033	-95.23	4.486	5.00	Pass
11a	6Mbps	2	113	6515	-	90.829	8.750	99.612	0.033	-95.23	4.382	5.00	Pass
11a	6Mbps	2	113	6515	-	90.936	8.750	99.719	0.033	-95.23	4.489	5.00	Pass

1Stream  
2Stream  
1Stream  
2Stream  
1Stream  
2Stream

Band VII MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
11a	6Mbps	2	117	6535	-	90.469	8.870	99.372	0.033	-95.23	4.142	5.00	Pass
11a	6Mbps	2	117	6535	-	90.614	8.870	99.517	0.033	-95.23	4.287	5.00	Pass
11a	6Mbps	2	149	6695	-	89.794	9.630	99.457	0.033	-95.23	4.227	5.00	Pass
11a	6Mbps	2	149	6695	-	89.983	9.630	99.646	0.033	-95.23	4.416	5.00	Pass
11a	6Mbps	2	181	6855	-	90.122	9.400	99.555	0.033	-95.23	4.325	5.00	Pass
11a	6Mbps	2	181	6855	-	90.174	9.400	99.607	0.033	-95.23	4.377	5.00	Pass

1Stream  
2Stream  
1Stream  
2Stream  
1Stream  
2Stream

Band VIII straddle channel MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
11a	6Mbps	2	185	6875	-	90.243	9.390	99.666	0.033	-95.23	4.436	5.00	Pass
11a	6Mbps	2	185	6875	-	90.273	9.390	99.696	0.033	-95.23	4.466	5.00	Pass

1Stream  
2Stream

Band VIII MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
11a	6Mbps	2	189	6895	-	89.971	9.380	99.351	FALSE	-95.23	4.121	5.00	Pass
11a	6Mbps	2	189	6895	-	90.163	9.380	99.576	0.033	-95.23	4.346	5.00	Pass
11a	6Mbps	2	209	6995	-	89.910	9.500	99.443	0.033	-95.23	4.213	5.00	Pass
11a	6Mbps	2	209	6995	-	89.999	9.500	99.532	0.033	-95.23	4.302	5.00	Pass
11a	6Mbps	2	229	7095	-	89.386	10.090	99.509	0.033	-95.23	4.279	5.00	Pass
11a	6Mbps	2	229	7095	-	89.549	10.090	99.672	0.033	-95.23	4.442	5.00	Pass

1Stream  
2Stream  
1Stream  
2Stream  
1Stream  
2Stream

E (dBuV/m) = Measured amplitude level (dBuV) + Path Loss (dB) + Duty Factor (dB)  
EIRP (dBm) = E (dBuV/m) + 20log(d[m]) - 104.77

**TEST RESULTS DATA**  
**EIRP Power Spectral Density**

Band V MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail	
HE20	MCS0	2	033	6115	Full	92.049	7.450	99.520	0.021	-95.23	4.290	5.00	Pass	1Stream
HE20	MCS0	2	033	6115	Full	92.075	7.450	99.546	0.021	-95.23	4.316	5.00	Pass	2Stream
HE20	MCS0	2	065	6275	Full	91.735	7.860	99.616	0.021	-95.23	4.386	5.00	Pass	1Stream
HE20	MCS0	2	065	6275	Full	91.384	7.860	99.265	0.021	-95.23	4.035	5.00	Pass	2Stream
HE20	MCS0	2	093	6415	Full	91.185	8.350	99.556	0.021	-95.23	4.326	5.00	Pass	1Stream
HE20	MCS0	2	093	6415	Full	91.343	8.350	99.714	0.021	-95.23	4.484	5.00	Pass	2Stream
HE40	MCS0	2	035	6125	Full	92.063	7.480	99.584	0.041	-95.23	4.354	5.00	Pass	1Stream
HE40	MCS0	2	035	6125	Full	92.011	7.480	99.532	0.041	-95.23	4.302	5.00	Pass	2Stream
HE40	MCS0	2	067	6285	Full	91.415	7.910	99.366	0.041	-95.23	4.136	5.00	Pass	1Stream
HE40	MCS0	2	067	6285	Full	91.656	7.910	99.607	0.041	-95.23	4.377	5.00	Pass	2Stream
HE40	MCS0	2	091	6405	Full	91.136	8.330	99.507	0.041	-95.23	4.277	5.00	Pass	1Stream
HE40	MCS0	2	091	6405	Full	91.016	8.330	99.387	0.041	-95.23	4.157	5.00	Pass	2Stream
HE80	MCS0	2	039	6145	Full	91.789	7.550	99.368	0.029	-95.23	4.138	5.00	Pass	1Stream
HE80	MCS0	2	039	6145	Full	91.845	7.550	99.424	0.029	-95.23	4.194	5.00	Pass	2Stream
HE80	MCS0	2	071	6305	Full	91.321	8.010	99.360	0.029	-95.23	4.130	5.00	Pass	1Stream
HE80	MCS0	2	071	6305	Full	91.300	8.010	99.339	0.029	-95.23	4.109	5.00	Pass	2Stream
HE80	MCS0	2	087	6385	Full	91.011	8.290	99.330	0.029	-95.23	4.100	5.00	Pass	1Stream
HE80	MCS0	2	087	6385	Full	91.173	8.290	99.492	0.029	-95.23	4.262	5.00	Pass	2Stream
HE160	MCS0	2	047	6185	Full	91.873	7.610	99.512	0.029	-95.23	4.282	5.00	Pass	1Stream
HE160	MCS0	2	047	6185	Full	91.810	7.610	99.449	0.029	-95.23	4.219	5.00	Pass	2Stream
HE160	MCS0	2	079	6345	Full	91.349	8.190	99.568	0.029	-95.23	4.338	5.00	Pass	1Stream
HE160	MCS0	2	079	6345	Full	91.276	8.190	99.495	0.029	-95.23	4.265	5.00	Pass	2Stream

Band VI MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail	
HE20	MCS0	2	097	6435	Full	91.214	8.380	99.615	0.021	-95.23	4.385	5.00	Pass	1Stream
HE20	MCS0	2	097	6435	Full	91.035	8.380	99.436	0.021	-95.23	4.206	5.00	Pass	2Stream
HE20	MCS0	2	105	6475	Full	90.969	8.530	99.520	0.021	-95.23	4.290	5.00	Pass	1Stream
HE20	MCS0	2	105	6475	Full	90.871	8.530	99.422	0.021	-95.23	4.192	5.00	Pass	2Stream
HE20	MCS0	2	113	6515	Full	90.709	8.750	99.480	0.021	-95.23	4.250	5.00	Pass	1Stream
HE20	MCS0	2	113	6515	Full	90.668	8.750	99.439	0.021	-95.23	4.209	5.00	Pass	2Stream
HE40	MCS0	2	099	6445	Full	91.254	8.380	99.675	0.041	-95.23	4.445	5.00	Pass	1Stream
HE40	MCS0	2	099	6445	Full	91.069	8.380	99.490	0.041	-95.23	4.260	5.00	Pass	2Stream
HE40	MCS0	2	107	6485	Full	91.070	8.570	99.681	0.041	-95.23	4.451	5.00	Pass	1Stream
HE40	MCS0	2	107	6485	Full	90.637	8.570	99.248	0.041	-95.23	4.018	5.00	Pass	2Stream
HE80	MCS0	2	103	6465	Full	90.885	8.470	99.384	0.029	-95.23	4.154	5.00	Pass	1Stream
HE80	MCS0	2	103	6465	Full	90.842	8.470	99.341	0.029	-95.23	4.111	5.00	Pass	2Stream

Band VI straddle channel MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail	
HE40	MCS0	2	115	6525	Full	90.698	8.810	99.549	0.041	-95.23	4.319	5.00	Pass	1Stream
HE40	MCS0	2	115	6525	Full	90.649	8.810	99.500	0.041	-95.23	4.270	5.00	Pass	2Stream
HE80	MCS0	2	119	6545	Full	90.494	8.940	99.463	0.029	-95.23	4.233	5.00	Pass	1Stream
HE80	MCS0	2	119	6545	Full	90.592	8.940	99.561	0.029	-95.23	4.331	5.00	Pass	2Stream
HE160	MCS0	2	111	6505	Full	90.574	8.690	99.293	0.029	-95.23	4.063	5.00	Pass	1Stream
HE160	MCS0	2	111	6505	Full	90.445	8.690	99.164	0.029	-95.23	3.934	5.00	Pass	2Stream

E (dBuV/m) = Measured amplitude level (dBuV) + Path Loss (dB) + Duty Factor (dB)

EIRP (dBm) = E (dBuV/m) + 20log(d[m]) - 104.77

**TEST RESULTS DATA**  
**EIRP Power Spectral Density**

Band VII MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail	
HE20	MCS0	2	117	6535	Full	90.582	8.870	99.473	0.021	-95.23	4.243	5.00	Pass	1Stream
HE20	MCS0	2	117	6535	Full	90.374	8.870	99.265	0.021	-95.23	4.035	5.00	Pass	2Stream
HE20	MCS0	2	149	6695	Full	89.779	9.630	99.430	0.021	-95.23	4.200	5.00	Pass	1Stream
HE20	MCS0	2	149	6695	Full	90.048	9.630	99.699	0.021	-95.23	4.469	5.00	Pass	2Stream
HE20	MCS0	2	181	6855	Full	90.255	9.400	99.676	0.021	-95.23	4.446	5.00	Pass	1Stream
HE20	MCS0	2	181	6855	Full	89.993	9.400	99.414	0.021	-95.23	4.184	5.00	Pass	2Stream
HE40	MCS0	2	123	6565	Full	90.606	9.060	99.707	0.041	-95.23	4.477	5.00	Pass	1Stream
HE40	MCS0	2	123	6565	Full	90.105	9.060	99.206	0.041	-95.23	3.976	5.00	Pass	2Stream
HE40	MCS0	2	147	6685	Full	89.989	9.590	99.620	0.041	-95.23	4.390	5.00	Pass	1Stream
HE40	MCS0	2	147	6685	Full	89.816	9.590	99.447	0.041	-95.23	4.217	5.00	Pass	2Stream
HE40	MCS0	2	179	6845	Full	90.011	9.440	99.492	0.041	-95.23	4.262	5.00	Pass	1Stream
HE40	MCS0	2	179	6845	Full	89.952	9.440	99.433	0.041	-95.23	4.203	5.00	Pass	2Stream
HE80	MCS0	2	135	6625	Full	90.224	9.350	99.603	0.029	-95.23	4.373	5.00	Pass	1Stream
HE80	MCS0	2	135	6625	Full	90.241	9.350	99.620	0.029	-95.23	4.390	5.00	Pass	2Stream
HE80	MCS0	2	151	6705	Full	89.859	9.670	99.558	0.029	-95.23	4.328	5.00	Pass	1Stream
HE80	MCS0	2	151	6705	Full	89.969	9.670	99.668	0.029	-95.23	4.438	5.00	Pass	2Stream
HE80	MCS0	2	167	6785	Full	89.560	9.750	99.339	0.029	-95.23	4.109	5.00	Pass	1Stream
HE80	MCS0	2	167	6785	Full	89.565	9.750	99.344	0.029	-95.23	4.114	5.00	Pass	2Stream
HE160	MCS0	2	143	6665	Full	90.022	9.520	99.571	0.029	-95.23	4.341	5.00	Pass	1Stream
HE160	MCS0	2	143	6665	Full	90.027	9.520	99.576	0.029	-95.23	4.346	5.00	Pass	2Stream

Band VIII straddle channel MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail	
HE20	MCS0	2	185	6875	Full	89.926	9.390	99.337	0.021	-95.23	4.107	5.00	Pass	1Stream
HE20	MCS0	2	185	6875	Full	89.883	9.390	99.294	0.021	-95.23	4.064	5.00	Pass	2Stream
HE40	MCS0	2	187	6885	Full	90.135	9.390	99.566	0.041	-95.23	4.336	5.00	Pass	1Stream
HE40	MCS0	2	187	6885	Full	90.008	9.390	99.439	0.041	-95.23	4.209	5.00	Pass	2Stream
HE80	MCS0	2	183	6865	Full	90.107	9.400	99.536	0.029	-95.23	4.306	5.00	Pass	1Stream
HE80	MCS0	2	183	6865	Full	90.093	9.400	99.522	0.029	-95.23	4.292	5.00	Pass	2Stream
HE160	MCS0	2	175	6825	Full	90.107	9.570	99.706	0.029	-95.23	4.476	5.00	Pass	1Stream
HE160	MCS0	2	175	6825	Full	90.002	9.570	99.601	0.029	-95.23	4.371	5.00	Pass	2Stream

Band VIII MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Tone	Reading Field Strength (dBuV)	Path Loss (dB)	Level Field Strength (dBuV/m)	Duty Factor (dB)	Correction Factor (dB)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail	
HE20	MCS0	2	189	6895	Full	89.835	9.380	99.236	0.021	-95.23	4.006	5.00	Pass	1Stream
HE20	MCS0	2	189	6895	Full	90.008	9.380	99.409	0.021	-95.23	4.179	5.00	Pass	2Stream
HE20	MCS0	2	209	6995	Full	89.980	9.500	99.501	0.021	-95.23	4.271	5.00	Pass	1Stream
HE20	MCS0	2	209	6995	Full	89.948	9.500	99.469	0.021	-95.23	4.239	5.00	Pass	2Stream
HE20	MCS0	2	229	7095	Full	89.237	10.090	99.348	0.021	-95.23	4.118	5.00	Pass	1Stream
HE20	MCS0	2	229	7095	Full	89.270	10.090	99.381	0.021	-95.23	4.151	5.00	Pass	2Stream
HE40	MCS0	2	195	6925	Full	90.230	9.360	99.631	0.041	-95.23	4.401	5.00	Pass	1Stream
HE40	MCS0	2	195	6925	Full	90.037	9.360	99.438	0.041	-95.23	4.208	5.00	Pass	2Stream
HE40	MCS0	2	211	7005	Full	89.676	9.550	99.267	0.041	-95.23	4.037	5.00	Pass	1Stream
HE40	MCS0	2	211	7005	Full	89.846	9.550	99.437	0.041	-95.23	4.207	5.00	Pass	2Stream
HE40	MCS0	2	227	7085	Full	89.171	10.040	99.252	0.041	-95.23	4.022	5.00	Pass	1Stream
HE40	MCS0	2	227	7085	Full	89.418	10.040	99.499	0.041	-95.23	4.269	5.00	Pass	2Stream
HE80	MCS0	2	199	6945	Full	90.180	9.350	99.559	0.029	-95.23	4.329	5.00	Pass	1Stream
HE80	MCS0	2	199	6945	Full	90.241	9.350	99.620	0.029	-95.23	4.390	5.00	Pass	2Stream
HE80	MCS0	2	215	7025	Full	89.596	9.690	99.315	0.029	-95.23	4.085	5.00	Pass	1Stream
HE80	MCS0	2	215	7025	Full	89.559	9.690	99.278	0.029	-95.23	4.048	5.00	Pass	2Stream
HE160	MCS0	2	207	6985	Full	89.860	9.470	99.359	0.029	-95.23	4.129	5.00	Pass	1Stream
HE160	MCS0	2	207	6985	Full	90.003	9.470	99.502	0.029	-95.23	4.272	5.00	Pass	2Stream

E (dBuV/m) = Measured amplitude level (dBuV) + Path Loss (dB) + Duty Factor (dB)  
 EIRP (dBm) = E (dBuV/m) + 20log(d[m]) - 104.77



### Appendix C. Radiated Spurious Emission

Test Engineer :	Eric Xiao and Bigshow Wang	Temperature :	22.1~23.1°C
		Relative Humidity :	55~60%

**UNII-5 5925~6425MHz  
WIFI 802.11ax HE20 (Harmonic @ 3m)**

WIFI Ant. 5+6	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11ax HE20 CH 93 6415MHz		12830	48.36	-39.84	88.2	52.03	39.69	13.74	57.1	-	-	P	H	
		19245	35.64	-38.36	74	55.57	38.1	-2.83	55.2	-	-	P	H	
													H	
													H	
													H	
													H	
			12830	47.33	-40.87	88.2	51	39.69	13.74	57.1	-	-	P	V
			19248	36.94	-37.06	74	56.87	38.1	-2.83	55.2	-	-	P	V
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.													



Emission below 1GHz

WIFI 802.11ax HE20 Full (LF @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
5+6		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)	
802.11ax HE20 Full LF		30	29.78	-10.22	40	37.31	24.3	0.64	32.47	166	360	Q	H	
		30	36.46	-3.54	40	43.99	24.3	0.64	32.47	166	360	P	H	
		99.84	36.8	-6.7	43.5	52.25	15.78	1.24	32.47	-	-	P	H	
		400.54	31.47	-14.53	46	39.91	21.68	2.36	32.48	-	-	P	H	
		477.17	38.02	-7.98	46	44.34	23.51	2.61	32.44	-	-	P	H	
		727.43	33.28	-12.72	46	35.17	27.18	3.26	32.33	-	-	P	H	
		874.87	37.27	-8.73	46	36.61	28.77	3.63	31.74	-	-	P	H	
														H
														H
			50.37	43.84	3.84	40	61.37	14.14	0.9	32.57	100	202	P	V
			50.37	34.52	-5.48	40	52.05	14.14	0.9	32.57	100	202	Q	V
			94.02	36.25	-7.25	43.5	52.52	14.98	1.21	32.46	-	-	P	V
			118.27	35.92	-7.58	43.5	49.92	17.22	1.3	32.52	-	-	P	V
			484.93	39.9	-6.1	46	46.06	23.66	2.62	32.44	-	-	P	V
			557.68	34.59	-11.41	46	38.37	25.83	2.89	32.5	-	-	P	V
			874.87	39.21	-6.79	46	38.55	28.77	3.63	31.74	-	-	P	V
														V
														V
Remark	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against limit line.</li> <li>The emission position marked as "-" means no suspected emission found or emission level has at least 6dB margin against limit or noise floor only.</li> </ol>													





**Note symbol**

*	<b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is <b>over limit</b> line.
P/A	<b>Peak</b> or <b>Average</b>
H/V	<b>Horizontal</b> or <b>Vertical</b>



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
5+6		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11ax CH 93 6415MHz		6420	55.45	-32.75	88.2	54.51	32.22	4.58	35.86	103	308	P	H

1. Path Loss(dB)

Above 1GHz, Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB) + Distance extrapolation Factor (dB)

Below 1GHz, Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)

2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Margin(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 6420MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Margin(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -32.75(dB)

Peak measured complies with the limit line, so test result is “PASS”.



## Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Eric Xiao and Bigshow Wang	Temperature :	22.1~23.1°C
		Relative Humidity :	55~60%

### UNII-5 - 5925~6425MHz

### WIFI 802.11ax HE20 (Harmonic @ 3m)

WIFI	UNII-5 5925~6425MHz Harmonic @ 3m	
ANT	802.11ax HE20 CH93 6415MHz	
5+6	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-HY Condition : PEAK(UNII)_6E 3m 91200_02294_220623 HORIZONTAL</p>	<p>Site : 03CH15-HY Condition : PEAK(UNII)_6E 3m 91200_02294_220623 VERTICAL</p>



WIFI	UNII-5 5925~6425MHz Harmonic @ 3m	
ANT	802.11ax HE20 CH93 6415MHz	
5+6	Horizontal	Vertical
14.47~ 14.50 GHz	<p>Site : 03CH15-HY Condition : AV6(UNII)_6E 3m 91200_02294_220623 HORIZONTAL</p>	<p>Site : 03CH15-HY Condition : AV6(UNII)_6E 3m 91200_02294_220623 VERTICAL</p>
17.70~ 18.00 GHz	<p>Site : 03CH15-HY Condition : AV6(UNII)_6E 3m 91200_02294_220623 HORIZONTAL</p>	<p>Site : 03CH15-HY Condition : AV6(UNII)_6E 3m 91200_02294_220623 VERTICAL</p>



**Emission below 1GHz  
5GHz WIFI 802.11ax HE20 Full (LF)**

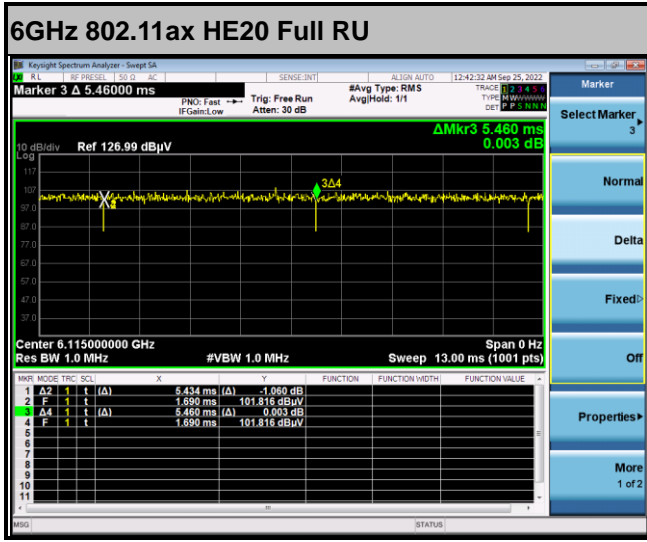
<b>WIFI</b>	<b>5GHz WIFI</b>	
<b>ANT</b>	<b>802.11ax HE20 Full LF</b>	
<b>5+6</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>QP / Peak</b>	<p>Site : 03CH15-HY Condition : QP 3m BIL06_41912_20220206 HORIZONTAL</p>	<p>Site : 03CH15-HY Condition : QP 3m BIL06_41912_20220206 VERTICAL</p>



### Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
5+6	6GHz 802.11ax HE20 Full RU	99.52	-	-	10Hz

#### MIMO <Ant. 5+6>



—THE END—